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UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

GRAND TETON NATIONAL PARK
JACKSON HOLE NATIONAL MONUMENT

FILE NO.

S
Control
Insect
✓ General

MOUNTAIN PINE BEETLE CONTROL
SPRING & FALL-1949

IMPORTANT

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ARNO B. CAMMERER,
Director.

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January 19, 1950

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THE PROJECT IN GENERAL

Most of the mountain pine beetle (Dendroctonus monticolae) control efforts during the June 22-July 23, 1949 Control Project were concentrated on the more heavily infested lodgepole pine (Pinus contorta) type on the Signal Mountain and J Y Ranch areas. Timbered Island, the Pot Holes, portions of the Windy Point and Snake River Bottom areas, and small miscellaneous areas were also treated. It is regrettable that a 100 per cent coverage on all infested areas was made impossible by a delay of the allotment of forest pest control funds. The 1949 Spring was dry and open ; early control work would not have been hampered by adverse weather conditions or deep snows.

The factor of extremely limited time necessitated complete revision of plans and organization. Our equipment and supply needs were taken care of, without delay, by the Forest Service. The Glacier and Yellowstone National Parks were quick to come to our aid by making available the services of qualified men to overcome the loss of earlier selected key personnel, lost because of delay in starting the program. It is gratifying to know the Forest Service and other National Parks cooperate so willingly during such emergencies.

During the 1949 Spring Project 3,369 trees were treated on 3,963 acres and during the 1949 Fall Program 1919 trees were treated on 5,613 acres.

Considering the "shotgun" nature of the Spring Project the safety record on the job is considered as good, there being only two minor accidents.

We wish to use this means to express our appreciation for the cooperation and assistance given by the Forest Service, the Bureau of Entomology and Plant Quarantine, and the Yellowstone and Glacier National Parks.

SURVEY RESULTS

The 1949 Fall survey has revealed an alarming increase in the acreage and the number of trees infested by mountain pine beetle on Park-Monument lands. A 1948 survey indicated 7,800 infested trees on 24,900 acres, but the 1949 survey indicates that 12,500 trees and 34,000 acres need treating during the 1950 Spring. The 1949 survey also shows an infestation spread to Arizona Creek or about one half the distance between the 1948 head of the infestation and the Southern boundary of Yellowstone National Park. Results of the 1949 survey show an absolute necessity of a 100 per cent complete and thorough 1950 Control Project, if we are to save the lodgepole stands on the Park-Monument areas and prevent an infestation spread to the Teton National Forest and the Yellowstone to the east and north of the Park-Monument areas.

Mr. T. T. Terrell of the Bureau of Entomology and Plant Quarantine advises that our 1950 control plans should include a 35 per cent safety margin increase in the number of attacked trees to be treated during the 1950 Control Project. Mr. Terrell feels that such an increase has occured on the Park-Monument areas because of the post-survey increase in the number of attacks that occured on the Teton Forest's Lost Creek area, just across the valley from the Teton National Park Headquarters.

The 1949 survey indicated 11,199 attacked trees on about 39,640 acres in need of 1950 treatment, but by adding the 35 per cent safety margin and subtracting the 1919 trees treated during the 1949 Fall, we will have a total of 12,500 trees on 34,000 acres (5,613 acres were treated during the Fall of 1949) to be treated during the 1950 Control Project.

The 1949 Park-Monument survey was made during the period August 8 and September 19, and was financed by the Park Service from insect control deficiency appropriation funds.

Please see the summary chart on page 3.

The 1949 survey, under the supervision of Mr. Vernon Bressler, was very good and complete. Three of our Projects chief spotters, Messrs. Ralph Murphy, Robert Henley and Richard Moore, assisted Mr. Bressler.

GRAND TETON NATIONAL PARK AND JACKSON HOLE NATIONAL MONUMENT
MOUNTAIN PINE BEETLE CONTROL PROJECT
1949

SUMMARY CHART

UNIT	NO.	1948 APPROX. ACRES OF TYPE	1949 APPROX. ACRES OF TYPE	1948 INFESTATION	1949 TREATED	1949 INFESTATION	% CHANGE FROM 1948
Signal Mountain	1 & 1A	3,000	4,100	1,322	1,075	1,917	+ 45
Burnt Ridge	2	1,800	1,500	125	*	954	+ 660
Jenny Lake	3	700	700	28	*	84	+ 200
Headquarters	4	2,500	2,500	710	*	1,250	+ 76
Windy Point	5	3,000	3,000	729	131*	1,320	+ 81
J Y Ranch	6	4,150	4,150	3,949	1,335	622	- 84
Timbered Island	7	600	600	114	79	72	- 37
Blacktail Butte	8	250	250	125	*	350	+ 180
Jackson Lake	9 & 9A	6,500	6,000	510	*	3,200	+ 600
Snake River	10	450	300	284	460	252	- 11
Moran	11	**	640	---	---	250	+ ---
Hermitage Point	12	**	12,000	---	---	960	+
Lava Creek	13	**	1,600	---	---	568	+
Miscellaneous***	--	---	---	---	294	---	---
TOTALS		24,950	39,640	7,996	3,569	11,197	

- 1,919 FALL TREATED
9,280
+ 3,248 35% SAFETY MARGIN
12,528 TO BE TREATED-1950

* Marginal Control Measures
** New Areas
*** Pot Holes, etc.

ORGANIZATION AND PROJECT OPERATION

Recruitment of key personnel and labor was started June 21, upon receipt of control work authorization.

Carpenters and laborers were employed to construct tent frames, sanitary facilities and to do other camp work necessary for the Project. The Park Headquarters was used as a base for Project operations. Our enlarged Government mess house proved to be very satisfactory in handling the regular crews and the insect control crews.

Time did not permit our completing the large task confronting us, but work accomplished in the field was with the able and vigorous assistance of Messrs. Harris Streed and Charles Johnson, detailed from Glacier National Park and Messrs. Paul Wykert and James Thomson, detailed from Yellowstone National Park.

Dr. J. V. K. Wagar of the Colorado A & M College's School of Forestry, Fort Collins, Colorado, through the efforts of Rocky Mountain National Park and Dr. Noel D. Wygant of the Bureau of Entomology and Plant Quarantine, Fort Collins, Colorado, recommended three students for our chief spotter needs. These men, Ralph Murphy, Richard Moore and Robert Henley proved to be very efficient in their work.

We were compelled to employ practically every applicant appearing at the Park Headquarters. This method of employment is undesirable as the work of some of these men was very satisfactory, but the work of others was entirely unsatisfactory. The work results of men, employed from our regular local employment sources by personal interview, have proven very good. The better men from local sources had obtained employment elsewhere by the time our program was started.

The present mixing plant was sufficiently large enough for former control operations, but will have to be enlarged for the 1950 Project. We will also need a loading platform and a hoist for loading and unloading the unusually heavy ortho drums.

TRAINING

Not much can be said for our 1949 training program, except that it was poor. A desirable training program was made impossible by the time element. One days training was given the key personnel and it was attempted to train the crews on the job.

To effect our 100 per cent 1950 Project every man on the job will be thoroughly trained before going into the field.

SPOTTING

As during the 1948 Project, methods of control standardized by the Bureau of Entomology and Plant Quarantine were followed during the 1949 Project.

Full, six-man spotting crews were used. Each crew consisted of a chief spotter, a compassman and four spotters.

The 1948 survey indicated Signal Mountain as the head of our infestation, and the J Y Ranch area as the base, and both of these areas were shown by the survey to be the more heavily infested of all Park-Monument areas. It was believed that by concentrating our efforts on the Signal Mountain and J Y Ranch areas that we could hold the infestation in check, but we were mistaken in this belief as the infestation did spread to the north and east. Two spotting crews were used on each of the above mentioned areas.

A fifth spotting crew was used for spotting the Snake River Bottom area portion treated and easily accessible places, such as the campgrounds, road sides, etc. One section of the Snake River Bottom had to be respotted and retreated because of poor work.

A good job was accomplished on Signal Mountain and it is not understood why there should be such a heavy reinfestation, unless it occured from the adjacent Jackson Lake area or from an early flight of some of the mountain pine beetle.

It was discouraging to have reports of partial early flights having taken place on every area spotted and treated. There were also reports of new attacks occuring before the Project ended.

The Yellowstone National Park detail arrived at the Park Headquarters June 22 and the Glacier National Park detail arrived June 24. Training was given key personnel on June 25 and spotting started Monday, June 27. Spotting and treating operations were continued until July 16 and one crew continued until July 23 with mop-up operations.

NATURAL CONTROL & OTHER FOREST ENEMIES

Casual observations would indicate an increase in the pop-

ulation of the predacious insects, and that the work of woodpeckers is the same as in 1948, very light. No observations were made of other forest enemies.

TREATING

The method of spraying standing trees was used during the Park-Monument Project. The infested trees were sprayed with an insecticidal mixture of one-to-five orthodichlorobenzene and number one fuel oil. The ortho-fuel oil insecticide was mixed at our mixing plant and supplied to the contractors and Park crews from that point.

Each treated tree was inspected by a checker for proper treatment. One section of the Snake River Bottom had to be re-treated because some infested trees had been missed and others were poorly treated. This work was done by the Park Crews.

Because of the fact that partial flight from many of the spotted and treated trees was found to have taken place, it is believed that every effort should be made to have all trees treated by July 1.

Of 3,369 infested trees treated on the Park-Monument areas, 2,376 were treated by contractual services, and 993 were treated by Park crews.

Contractual service data and cost of treating is shown in the summary chart on page 7.

GRAND TETON NATIONAL PARK AND JACKSON HOLE NATIONAL MONUMENT
MOUNTAIN PINE BEETLE CONTROL PROJECT
1949

CONTRACTUAL SERVICES DATA

AREA	CONTRACTOR	NUMBER TREES TREATED	COST PER TREE	TOTAL AMOUNT OF CONTRACT
Portion of J Y Ranch	Ike Neal	688	$1.75	$1204.00
Portion of J Y Ranch	Tad Bircher	618	2.15	1328.70
One half of Signal Mountain	Charles Irwin	556	0.98	544.88
Other one half of Signal Mountain	Charles Irwin	514	1.00	514.00
TOTALS		2,376		$3,591.58

The average cost of treating 2,376 trees by contract was $1.51.

Mr. Neal started treating on July 5 and completed his contract July 16.

Mr. Bircher started treating July 5 and completed his contract July 11.

Mr. Irwin started treating June 29 and completed his contracts July 22.

The portions of the J Y Ranch area treated by Messrs. Neal and Bircher are rather difficult to cover, but their equipment was very good, which fact helped them to do an excellent treating job.

Mr. Irwin experienced much difficulity with his equipment and labor, but the infested trees on the Signal Mountain area were thoroughly treated.

TRANSPORTATION

We acquired two old WAA vehicles, a station wagon and a pick-up truck, but even with these acquisitions it was necessary to borrow two of the regular Park trucks.

PROJECT SAFETY RECORD

Crew leaders and crewmen were constantly reminded of the safety hazards involved. We were fortunate, considering the rushed organization of the Project, to have only two minor accidents, both of these were caused by the admitted carelessness of the employees involved.

A crane should be purchased (a Ruger truck crane would be satisfactory) to eliminate our greatest safety hazard, the handling of extremely heavy and awkward ortho drums. In the past no one man has been permitted to touch full drums until sufficient man power was available to help handle the heavy drums. Much valuable time was lost in waiting until the needed man power was available.

It is believed that many safety problems will be eliminated with an early allotment of control funds. A thorough safety training is an all-important must for our control work.

PROJECT ACCOMPLISHMENTS

1948 Survey		1949 Project	
Approximate Acres Of Type	Total N. A.	Acres Treated	Total N. A. Treated
24,950	7,896	5,963	3,369

The total cost per tree on the 1949 Project was $9.80 as compared with a total cost per tree of $5.99 on the 1948 Project.

The approximate average cost per tree for spotting was $2.35 as compared with $1.85 during the 1948 Project (Includes crews salaries and cost of men detailed from other areas).

There was an average of 1.79 gallons of insecticide sprayed on each tree

There were an estimated 30 contributed Park Service man days and 3 contributed B. E. & P. Q. man days. Costs are not available. The number and cost of the man days contributed by the Forest Service in the procurement of supplies and materials for us are not available.

The cost of treating 2,376 by contractual services was $3,591.58, or an average of $1.51 per tree as compared with the average contract cost in 1948 of $1.08 per tree.

There were 739 man days spent on the Project (Does not include contributed man days or clerical man days).

RECOMMENDATIONS

Recommendations will be included in tentative 1950 Project plans, which will be submitted as soon as possible.

FINANCIAL STATEMENT
PARK-MONUMENT INSECT CONTROL PROJECT
1949 SPRING

Direct Project Expenditures

Appropriation # 14-129/02558.020 (5)

Personal Services	
a. Total personal services (Excepting men detailed from other areas)	$15,323.31*
b. Men detailed from other areas	1,180.49
Communications	59.67
Contractual services for tree treating	3,591.58
Equipment & Transportation	2,452.47
Proportionate share of mess deficit	300.00
Supplies & Materials	4,859.41
Orthodichlorobenzene--25,000 lbs	2,305.84
Fuel oil @18.8¢ per gal.--less ½ of 1%	930.60
Travel	525.83
Acquisition charges for 2 WAA vehicles	1,457.34
TOTAL DIRECT PROJECT EXPENDITURES	$32,986.54
ALLOTMENT WITHDRAWN	19,000.00
UNOBLIGATED BALANCE	5,013.46
TOTAL ALLOTMENTS-APPRO. #14-129/02558.020(5)	$57,000.00
Less inventory of new equipment, Supplies & Materials on hand and available for future projects**	32,986.54 2,473.29
	$30,513.25

*This figure includes the salaries of the survey crew.

**Please see page 11 for an itemized inventory of equipment on hand.

INVENTORY
SPECIAL INSECT CONTROL EQUIPMENT

No.	Item	Condition	Value
44	Axes, hand w/sheaths	34 good-10 bad	$ 96.26
300	Cans, 5 gal. jeep & water	300 good	791.90
1	Chain, 100 ft. eng.	good	5.35
4	Compasses, hand (Leupold)	good	51.00
6	Counters, mechanical (Tally)	good	12.43
20	Cots, Army, canvas, folding	good	55.00
20	Mattresses, Army, single	good	123.00
1	Planimeter, compensating	good	33.08
1	Pump, centrifugal (Mercury)	good	100.60
4	Pumps, barrel, rotary, hand	good	71.62
12	Pumps, stirrup, hand, spray	10 good-2 poor	103.68
3	Pumps, power, spray	good	273.74
1	Scale, Survey & Civil Eng.	good	6.58
37	Staplers, (Bostitch)	good	315.00
3	Tanks, 1600 gal., storage	good	621.17
3	Trucks, (Jeeps)	good	4,962.03
1	Truck, (Ford 6) 1942, 1½-ton standard cargo, 4x4	fair	1,052.90
1	Truck, carryall, Dodge, 1½ ton, 4x4	fair	727.22
1	Truck, stationwagon, Deluxe, 1942	fair	300.00
1	Truck, pickup, Ford, 1942	fair	300.00
	Miscellaneous items, extention rods, nozzles, etc.	good	146.76
			$10,149.32

PARK-MONUMENT
MOUNTAIN PINE BEETLE CONTROL
FALL-1949

From October 11 through November 22 mountain pine beetle control efforts were directed toward the cleaning up of areas difficult to reach for treating during the spring, because of high waters, etc. The areas treated include the campgrounds, ranches, lodges, a portion of the Snake River bottom, and along streams.

The Teton National Forest had a control camp established near the Ditch Creek area, and a portion of the infested Monument areas was within easy reach of the camp. This Monument area is quite some distance from the Park Headquarters and as it would have necessitated our establishing a control camp there in the spring, the Forest Service agreed to treat the area for us, thereby saving a considerable sum of money.

A check will be made of the areas treated during the fall next spring.

ACCOMPLISHMENTS

A total of 5613 acres were covered during the program, and 1919 infested trees were located and treated. The Forest Service treated 777 infested trees on 807 acres for us.

The total cost per tree was $4.49.
The total cost per tree treated by the Park Service was $4.79 and $4.03 for the trees treated by the Forest Service.
The average cost per tree for spotting and treating 1142 trees by the Park Service was $4.26 (crews salaries & oil).
The average cost per tree for spotting 1142 trees by the Park Service was $2.10 (crews salaries only).
The average cost per tree for treating 1142 trees by the Park Service was $1.29 (crews salaries only).
There was an average of 2.97 gallons of insecticide sprayed on each infested tree by the Park Service and 2.47 gallons by the Forest Service.

FINANCIAL STATEMENT
PARK-MONUMENT
MOUNTAIN PINE BEETLE CONTROL
FALL-1949

Direct Program Expenditures

Appropriation # 14-1202258.020(5)

Personal Services (Includes overtime pay for 2 rangers, clerk-typist, control crews, and lump sum leave for one chief spotter.....	$4429.74
Travel.....	33.75
Equipment.....	360.00
Supplies and Materials.....	280.45
Proportionate share of mess deficit.....	400.00
Forest Service contractual services(treating).....	3139.03
TOTAL DIRECT PROJECT EXPENDITURES.....	$8642.97
UNOBLIGATED BALANCE.....	357.03
TOTAL ALLOTMENTS-APPRO. # 14-1202258.020(5).....	$9,000.00

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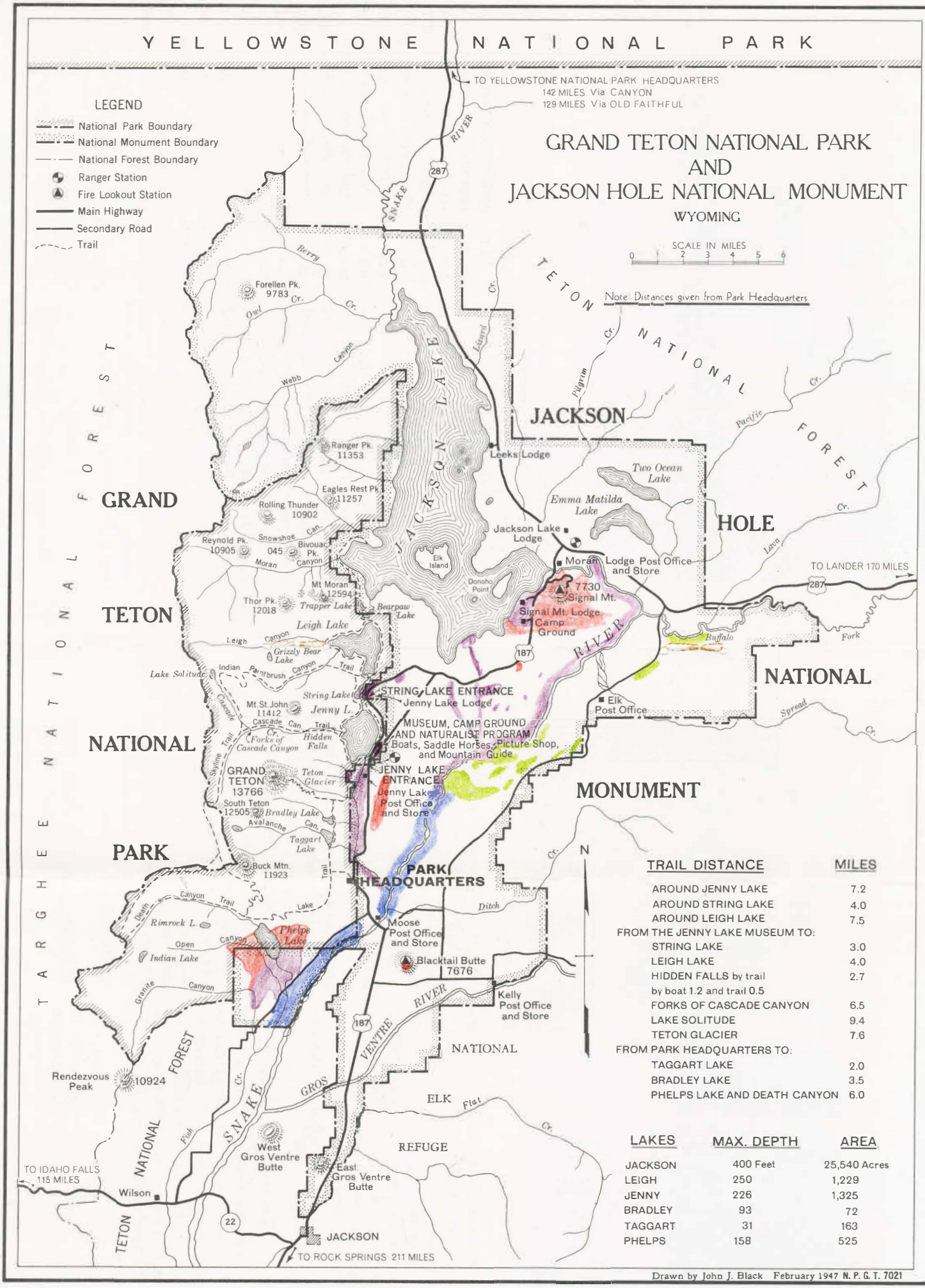

TRAIL DISTANCE	MILES
AROUND JENNY LAKE	7.2
AROUND STRING LAKE	4.0
AROUND LEIGH LAKE	7.5
FROM THE JENNY LAKE MUSEUM TO:	
STRING LAKE	3.0
LEIGH LAKE	4.0
HIDDEN FALLS by trail	2.7
by boat 1.2 and trail 0.5	
FORKS OF CASCADE CANYON	6.5
LAKE SOLITUDE	9.4
TETON GLACIER	7.6
FROM PARK HEADQUARTERS TO:	
TAGGART LAKE	2.0
BRADLEY LAKE	3.5
PHELPS LAKE AND DEATH CANYON	6.0

LAKES	MAX. DEPTH	AREA
JACKSON	400 Feet	25,540 Acres
LEIGH	250	1,229
JENNY	226	1,325
BRADLEY	93	72
TAGGART	31	163
PHELPS	158	525

Drawn by John J. Black February 1947 N. P. G. T. 7021

MAP LEGEND

This map is intended only for the purpose of giving an idea of the areas treated during the 1949 Spring and Fall. A detailed and accurate control map will be submitted for the 1950 Project.

Treated through contractual services for us by the Forest Service.

Treated during the 1949 Spring only.

Treated during both the 1949 Spring and Fall.

Treated during the 1949 Fall only.